

AMENDMENTS TO THE CLAIMS

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

The following listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) An inorganic scintillating mixture comprising at least a first and a second component each having a characteristic ~~behaviour~~behavior in response to ~~the an~~ irradiation with charged particles, ~~such as protons and heavy ions,~~ showing a typical Bragg peak with respect to a relative depth dose; said first component having a quenching characteristic in ~~the a~~ Bbragg peak region and said second component showing an increased efficiency in the Bbragg peak region, both being related to a reference curve for ~~the a~~ relative dose.

2. (currently amended) The ~~i~~norganic scintillating mixture according to claim 1, ~~characterized in that comprising~~ as the first component Gadolinium-Oxy-Sulfid ($Gd_2O_2S:Tb$) and as the second component Zinc-Cadmium-Sulfid ($(Zn,Cd)S:Ag$) ~~is comprised~~.

3. (currently amended) The ~~i~~norganic scintillating mixture according to claim 2, ~~characterized in that wherein the a~~ content of $Gd_2O_2S:Tb$ is in ~~the a~~ range of 60 to 90 %wt and ~~the a~~ content of $(Zn,Cd)S:Ag$ is in ~~the a~~ range of 10 to 40 %wt.

4. (currently amended) The ~~i~~norganic scintillating mixture according to claim 3, ~~characterized in that wherein the~~ content of $Gd_2O_2S:Tb$ is in the range of 75 to 85 %wt and the content of $(Zn,Cd)S:Ag$ is in the range of 15 to 25 %wt.

5. (currently amended) An inorganic scintillating mixture comprising at least a first, a second and a third component, ~~whereby wherein~~ the first and the second components ~~having~~ have a characteristic ~~behaviour~~ behavior in response to ~~the an~~ irradiation with charged particles, ~~such as protons and heavy ions~~, showing a typical Bragg peak with respect to a relative depth dose; said first component having a ~~quenching~~ quenching characteristic in ~~the a~~ a Bragg peak region and said second component showing an increased efficiency in the Bragg peak region in comparison to a reference curve for ~~the a~~ a relative dose, and said third component ~~has~~ having a binder characteristic in order to hold the first and the second component in a desired mechanical shape.

6. (currently amended) ~~An~~ The inorganic scintillating mixture according to claim 5, ~~characterized in that~~ comprising as the first component Gadolinium-Oxy-Sulfid ($Gd_2O_2S:Tb$), as the second component Zinc-Cadmium-Sulfid ($(Zn,Cd)S:Ag$), and as the third component an optical cement ~~is comprised~~.

7. (currently amended) The inorganic scintillating mixture according to claim 6, ~~characterized in that~~ wherein ~~the a~~ content of the optical cement is in ~~the a~~ range of 20 to 60 %wt, ~~the a~~ content of $Gd_2O_2S:Tb$ is in ~~the a~~ range of 30 to 60 %wt and ~~the a~~ content of $(Zn,Cd)S:Ag$ is in ~~the a~~ range of 05 to 30 %wt.

8. (currently amended) The inorganic scintillating mixture according to claim 7, ~~characterized in that~~ wherein the content of the optical cement is in the range of 35 to 45 %wt, the content of $Gd_2O_2S:Tb$ is in the range of 43 to 53 %wt and the content of $(Zn,Cd)S:Ag$ is in the range of 07 to 17 %wt, preferably 40 resp. 48 resp. 12 %wt.

9. (currently amended) A ~~s~~ sensor assembly ~~(30)~~ for charged particle dosimetry, ~~such as proton or heavy ion dosimetry~~, comprising: a three-dimensional array of sensor heads ~~(12)~~; each sensor head ~~(12)~~ being located on one end of an optical fibre ~~fiber~~ fiber ~~(16)~~; ~~the an~~ opposite end of the optical fibre ~~fiber~~ fiber ~~(16)~~ being associated with an optical light intensity measuring assembly ~~(20)~~; each sensor head ~~(12)~~ and at least partially ~~the its~~ optical fibre ~~fiber~~ fiber ~~(16)~~ are inserted into a respective cavity ~~(42)~~ located in a holder member ~~(22)~~.

10. (currently amended) The sSensor assembly (30) according to claim 9, ~~characterized in that wherein~~ the holder member (22) is a substantially cylindrical shaped organic body; said cavity (42) is oriented along ~~a its~~ longitudinal axis and has a depth aligned with ~~the a~~ desired sensor head's position in said three-dimensional array.

11. (currently amended) The sSensor assembly (30) according to claim 9 or 10, ~~characterized in that wherein~~ the holder members (22) are attached in a holder block (32) generating a regular pattern of the sensor heads (12) as seen in a direction parallel to ~~the~~ longitudinal axis of the holder members (22).

12. (currently amended) The sSensor assembly (30) according to claim 11, ~~characterized in that wherein~~ the regular pattern is a hexagonal pattern allowing to accommodate ~~the a~~ sensor heads (12) relative to ~~its~~ adjacent sensor heads (12) in an ~~equidistant~~ equidistant manner.

13. (currently amended) The sSensor assembly (30) according to claim 11 or 12, ~~characterized in that wherein~~ the holder block (32) is related with a stopper member (36) being disposed opposite to the holder block (32) assuring that each tip of the holder member (22) is oriented with a distinct distance from the holder block (32) as seen along the longitudinal axis of the holder member (22).

14. (currently amended) The sSensor assembly (30) according to claim 9 to 13, ~~characterized in that wherein~~ the holder member (22) comprises an annular notch (38) being associated with a sealing ring (36) disposed in the holder block (32) or on the notch (38).

15. (currently amended) The sSensor assembly (30) according to ~~any of the preceding claims 9 to 14~~, ~~characterized in that wherein~~ the sensor head (12) has a cylindrical shape and ~~preferably~~ comprises a mixture containing optical cement, $Gd_2O_3S:Tb$ and $(Zn,Cd)S:Ag$.

16. (currently amended) The sSensor assembly (30) according to claim 15, ~~characterized in that wherein~~ the sensor head (12) has a diameter in ~~the a~~ range of 1 to 5 mm and a height in ~~the a~~ range of 1 to 5 mm.

17. (currently amended) The sSensor assembly (30) according to claim 15 or 16, ~~characterized in that wherein the a~~ surface of the sensor head opposite to ~~the a~~ surface connected to the optical fibre fiber is layered with a reflexion film ~~(44)~~.

18. (currently amended) The sSensor assembly (30) according to ~~any of the preceding claims 9 to 17, characterized in that wherein~~ the three-dimensional array is disposed in a cuboid sensor volume in a manner that the sensor head positions are defined in a plane substantially parallel to ~~the a~~ (111)-plane in a crystal having a cuboid pattern.

19. (cancelled)

20. (cancelled)

21. (cancelled)